

South Dakota



DOT

FAST ROAD

to better performance



The South Dakota Department of Transportation

The Fast Road to Better Performance

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It was a million dollar day. Teams from Road Design, Payment to Vendors and Equipment Maintenance wrapped up a three day analysis of their work in which they identified over a million dollars in cost savings. These savings, representing between 20 and 30% of the cost of their work, were the result of actions to streamline processes and redeploy people to more productive uses.

The “million dollar day” was just one milestone in a successful effort to provide more cost-effective transportation to the citizens of South Dakota. The purpose of this paper is to describe this initiative to improve performance. It explains why the South Dakota Department of Transportation (SDDOT) embarked on this initiative, describes what they did, how they did it, the results they have achieved to-date, and the positive impact they will have going forward.

The need for Performance Management

The impetus for performance management in SDDOT comes from the drive to do “more with less” that is affecting state and local government all across the country. South Dakota has experienced its own share of budgetary difficulties, leading to pressures on SDDOT to find new more cost-effective ways to deliver transportation services.

SDDOT’s vision was to provide cost-effective transportation to meet the diverse mobility needs of South Dakota while retaining concern for safety and the environment. Although South Dakota was, in general, satisfied with its transportation services, there were concerns regarding performance management. According to Dennis Landguth, Secretary of SDDOT, these concerns were as follows:

- Some SDDOT managers did not understand the “business side of things”. Predominantly from an engineering background, these managers were experienced in the design, construction and maintenance of highways. But they had less experience measuring business performance and analyzing the financial impact of decisions.
- SDDOT lacked some key performance measures. For example, what did it cost to maintain a mile of secondary highway? How did this

cost vary from one region of the state to another? Without performance measures it was difficult to know whether or not SDDOT was competitive with private sector organizations or with other state departments of transportation.

- The absence of performance measures made it difficult to make fact-based decisions. For example, when should SDDOT replace equipment to achieve the lowest lifetime cost of equipment ownership?
- Not knowing the cost of processes and their outputs made it difficult to develop an informed outsourcing strategy. Which processes should be outsourced and which retained within the department?

An event reinforced the value of accurate cost information in making intelligent outsourcing decisions. A vendor approached SDDOT and offered to make road signs for the department. SDDOT looked at this offer but quickly realized they were unable to assess the potential economic benefit of outsourcing signs to this vendor. This was because SDDOT did not know the cost of manufacturing signs internally.



There was also an ongoing need to provide state legislators with measures of department performance. This reflected SDDOT’s desire to be accountable to the state

for the performance of the transportation system. It also reflected the need to use fact-based justification to support requests for SDDOT budget increases.

These factors prompted efforts to introduce performance measures to the department. SDDOT contracted with Cost Technology, Inc. in 2002 to implement the Collaborative Performance Management™ system.

Collaborative Performance Management™

Collaborative Performance Management™ (CPM) is an approach to measuring, analyzing and reporting performance that yields immediate and sustainable results. It combines analytic tools with collaborative use to engage people in the process. People involvement, decision analysis, change management, and value creation are four cornerstones of this method.

The overall purpose of CPM at SDDOT was to answer the following questions:

- Are we doing a good job or not for the taxpayers?
- Are our resources going into the right actions to accomplish our strategies?

- Are we doing what is needed to achieve our vision, mission and our strategic plan?
- Are there activities we could and should be doing better?

CPM has four components: Strategy Mapping, the Balanced Scorecard, Resource Planning, and Activity-Based Costing (Figure 1):

Strategy Mapping. A Strategy Map is a communication tool for describing strategy. It is typically broken into four perspectives—Customer Satisfaction, Business Improvement, Organizational Health, and Financial. Strategy Mapping is the process of developing the high-level objectives for each of these perspectives. These objectives form a measurable cause-and-effect framework for successfully executing the strategy. Strategy mapping helped SDDOT answer the following questions:

- Is our strategy in line with our mission?
- Does everyone understand and buy-in to the strategy?
- What specific actions are required to execute our strategy?

Collaborative Performance Management™



Figure 1. . The Collaborative Performance Management System™.

The Balanced Scorecard. The Balanced Scorecard is a carefully selected set of performance measures derived from the organization's strategy. The measures in the scorecard are developed for each of the four categories. The scorecards cascade down from the Department (DOT) level to the different Directorates, Regions and Areas of the State. Each scorecard describes and measures the contribution of that part of the organization to the successful execution of strategy. Scorecards are *balanced* because they address all pertinent areas of performance included in the Strategy Map (customer satisfaction, learning and growth etc). In this way, each scorecard ties directly to the strategy. The Balanced Scorecard will help SDDOT answer the following questions:

- How does each part of SDDOT contribute to the overall success of the department?
- How will we know if we are successful?
- Where do we expect to be with regard to our performance?
- How successful are we in accomplishing our objectives?

Resource Planning. Resource Planning is used to answer "what if?" questions about the impact of changes in the quantity and type of outputs, as well as changes in business practices. It simulates output and capacity requirements. The Resource Plan will help SDDOT answer the following questions:

- What process capability and resource capacity do we need to execute our strategic plan?
- If we aren't accomplishing our objectives, what will it take in resources to get to where we want to be?
- How will changes in our business practices affect our resource requirements?
- What will happen to certain activities if resources are taken away?
- How do we redeploy our resource to more productive uses?
- Given our strategic plan, and all the changes we envision, what does the required budget look like?

Activity-Based Costing. Activity-Based Costing (ABC) is a method of describing, measuring, analyzing and communicating business performance. It provides information on resources, processes and outputs useful for strategic decision making, operational improvement, and benchmarking. ABC is also an important source of performance measures

for the Balanced Scorecard. ABC helped SDDOT answer the following questions:

- How do our costs compare with other states and the private sector?
- How much does it cost to do our activities?
- How do our costs compare from one region (and area) to another?
- Where are the best opportunities to reduce cost?
- When we make a decision, such as to replace equipment, or to outsource an activity such as equipment maintenance, what is the cost of each decision alternative?

When SDDOT's CPM is complete, these primary components will work together as a performance management system to improve the cost-effective delivery of transportation services in the State of South Dakota.

Implementing Collaborative Performance Management™ at SDDOT

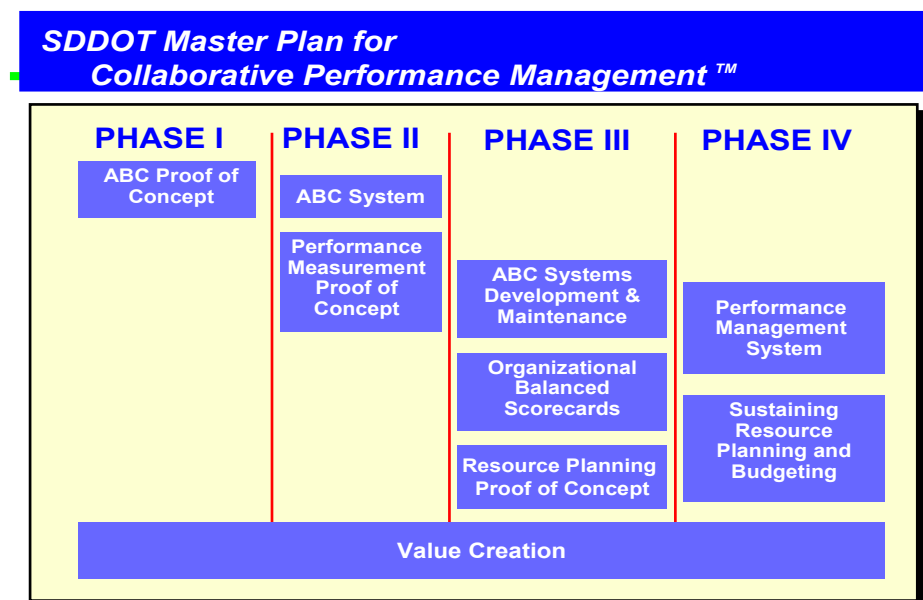


Figure 2. The SDDOT CPM Master Plan.

SDDOT wanted immediate and sustained results from their implementation of CPM. To accomplish this, they followed Cost Technology, Inc.'s unique "high-tech, high-touch" approach that combined learning and buy-in with the development of systems, procedures, and technology.

The implementation included a phased master plan, storyboarding, analytical tools, and value creation.

Phased Master Plan. The CPM implementation covered four distinct phases (Figure 2). These phases allowed each component of CPM to be subject to a “proof of concept” prior to full implementation. This approach was designed to reduce risk, enhance management buy-in and learning prior to full implementation, yield immediate results, and provide a plan for full implementation in the next phase. Phase 1 included an assessment, a proof of concept of ABC, and a Storyboarding pilot. Phase 2 included a full ABC system, further application of Storyboarding, and the proof of concept for strategy mapping and the Balanced Scorecard. Phase 3 will include the proof of concept for resource planning, complete the Balanced Scorecard, and conduct decision analyses and storyboarding applications. Phase 4 will wrap up resource planning and complete the CPM system. All Phases include a substantial Value Creation component to ensure that projected savings from Storyboarding and decision analyses are realized throughout the four-phase initiative.

esses. It is used to improve functional areas, reengineer business processes, and to develop best practices. At SDDOT, STORYsolve® routinely revealed cost reduction opportunities equal to 20-30 percent of the analyzed cost, and generated high levels of support for the initiative.

Analytical Tools. Analytical tools were required to build cost models, communicate information to decision makers, support accountability and collaboration using scorecards, and to support decision analyses. SDDOT used the SAS ABM 6.0 software to build the ABC model and to report ABC information to management. It is expected that scorecards will be maintained on the SAS SPM software. Decision support tools included Microsoft Excel and Access, and Cost Technology’s STORYsoft®.

Value Creation. Value creation is a change management and decision support process for converting the analyses into results. Results are not left to chance.

Rather, they are subject to systematic exploitation. At SDDOT Value Creation included action plan development and implementation, initiative organization structure, assignment of roles and responsibilities for creating results, and decision support for the Storyboarding and decision analysis teams.



Figure 3. SDDOT Payment to Vendors Storyboarding team participating in a regional best practices analysis.

Results

An interim scorecard on CPM revealed measurable results at SDDOT, and a positive impact on the work practices of the department and the lives of its employees.

Measurable results included many Storyboarding action plans for cost reduction.

These action plans included:

Storyboarding. Storyboarding is a structured method (called STORYsolve®) for cost reduction and process improvement. STORYsolve® is used to “drill down” into high cost areas in the ABC model or to analyze problem areas identified by management. It involves a team of workers from a process working together for 2-3 days to document, measure, analyze and improve their work processes.

- Road design
- Administrative processes such as payment to vendors and audit
- Maintenance processes such as mowing, road striping, and equipment maintenance, and
- Best practices analyses of regional striping and payment to vendor teams.

When fully implemented, these action plans will result in several million dollars of efficiencies for SDDOT.

Results have also been realized from decision analyses using ABC and storyboard information. For example, an analysis of the cost of in-house versus outsourced Right-of-Way appraisals showed that in-house appraisals were cheaper than using outside consultants. This analysis coincided with storyboard action plans that created cost efficiencies in the Right-of-Way department. These efficiencies provided the capacity to revert appraisals previously done by outside consultants to in-house completion. This change yielded significant cost savings for SDDOT and won the department an award from FHWA in the process.

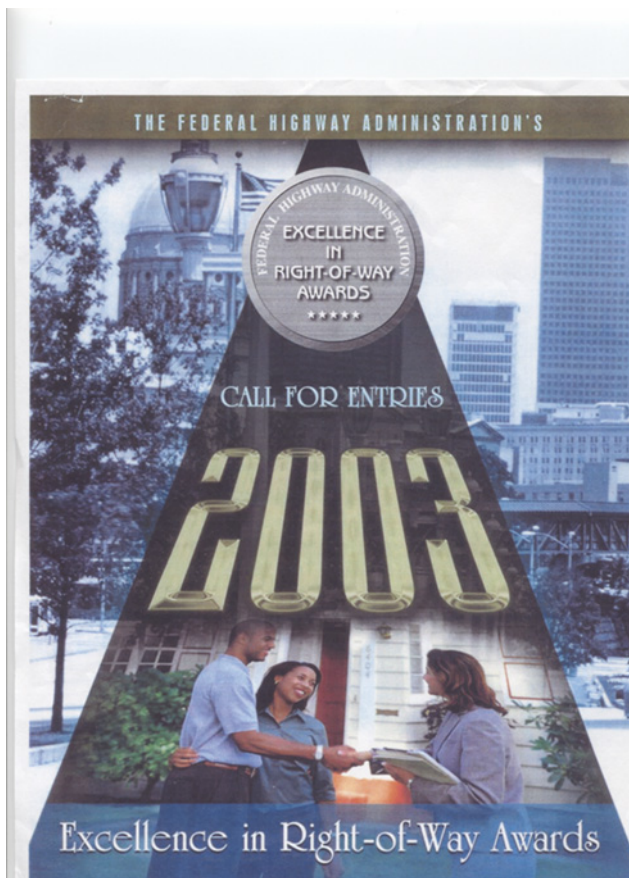


Figure 4. SDDOT's Right of Way department won an award from the Federal Highway Administration for process improvement using Storyboarding.

Looking to the future, it is expected that these results will increase in size and scope. In addition to cost savings, it is reasonable to expect an improvement in process quality, customer satisfaction and organizational health. Roxanne Rice, Fiscal and Public Assistance Director of SDDOT,

commented on the likely impact of CPM on work practices in the department and the lives of its employees:

"Through CPM, employees will know how their activities contribute to the mission, vision, and SDDOT strategic plan. They will be responsible for strategic performance measures and will want to contribute to their success."

CPM will encourage employees to tell us what should be expected with regard to their activities. It will give them the opportunity to make changes to their jobs (activities) that will increase efficiency and help them contribute to the strategic goals of the department. Everyone will be aware that we can run SDDOT like a business."

All of us will become more knowledgeable about the department and its mission. We will have buy-in regarding changes in the way we operate because these changes will come from the employees. We will feel more empowered."

We will be able to show our stakeholders how we are doing, what we are doing, why we are doing it, and what it costs them as taxpayers."

Development of CPM

Collaborative Performance Management (CPM) has set SDDOT on the fast road to better performance. It is already contributing to the cost-effective execution of its mission. The months ahead will see the completion of the following initiatives:

- Deployment of a change management and communication program. This program will prepare SDDOT personnel for change, explain how they will be impacted by CPM, and train them in the use of CPM tools.
- The use of ABC information to support management decision making.
- The transition from function-based to activity-based reporting.
- The realization of cost efficiencies from the first three phases of CPM.
- Decision analyses and special studies resulting in additional cost efficiencies.
- A system of scorecards that communicates strategy and measures performance.

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